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10/580,516	02/06/2007	Bruno Korneel Rene Tourwe	NL040024	2348

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EXAMINER	
PAUL, DISLER	

ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,516	TOURWE, BRUNO KORNEEL RENE	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3;5-15,17-21;23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3;5-15; 17-21; 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The applicant's amended claims have been fully considered and analyzed and are now rejected in view of new ground of rejection based on Anderson et al. (US 4,792,977).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 recites the limitation "the low pass filter" in therein. There is insufficient antecedent basis for this limitation in the claim.

For prior art rejection, claim 9 line 9 will be read as "wherein the digital processor further comprises a low pass filter for filtering the signal provided by the compressing amplifier".

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 14-15; 17-21 are rejected under 35 U.S.C. 101 because the statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor

positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the method including steps of attenuating, amplifying and clipping is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 5-7; 11-15, 17-18; 20-21; 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 4,792,977) and Davis et al. (US 6,574,342 B1) and Knapp et al. (US 7,324,649 B1).

Re claim 1, Anderson disclose of a sound reproduction system comprising an audio signal input , a audio signal processor and a audio signal output (fig.1 (22, 24, 36,40); col.16 line 25-55/input signal to be process and output accordingly) , wherein the signal processor comprises a high-pass (HP) filter with inherently having a pass frequency between a first and a second frequency (fig.2 (56); col.2 line 55-67; col.17 line 5-11; col.3 line 1-30/due to the frequency spectrum to pass audio signal for hearing/has a ranged for listening).

But, Anderson failed to disclose of the audio signal input being of a digital signal and digital processor and output. But, Davis et al. disclose of a system wherein the specific the audio signal input being of a digital signal and digital processor and output (fig.6 (142,138,120); col.5 line 30-50/analog input convert to digital and processed digitally). Thus, taking the combined teaching of Anderson and Davis et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Anderson with the audio signal input being of a digital signal and digital processor and output for enabling the device to process and compared differences in loudness in response to digitally formatted files for fitting.

The combined teaching of Anderson and Davis et al. as a whole, further disclose of a compressing amplifier for compression and amplification of a signal, at least said amplification being performed after HP filtering, and a clipper for clipping the HP filtered, compressed and amplified signal above a clipping level (fig.1; fig.2 (32, 74); col.18 line 10-40/signal after hp is then compress and amplified and then clipped accordingly).

However, the combined teaching of Anderson and Davis et al. as a whole, fail to disclose wherein the sound reproduction system further comprises a measuring device for measuring background noise, and an adaptor for adapting one or more parameters (f, order) of the high-pass filter in dependence on the measured background noise. But, Knapp et al. disclose of a system wherein the sound reproduction system further

comprises a measuring device for measuring background noise, and an adaptor for adapting one or more parameters (f, order) of the filter in dependence on the measured background noise (fig.2 (7,14-15); col.3 line 1-10; col.4 line 55-62). Thus, taking the combined teaching of Anderson and Davis and Knapp et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis as a whole, with wherein the sound reproduction system further comprises a measuring device for measuring background noise, and an adaptor for adapting one or more parameters (f, order) of the filter in dependence on the measured background noise for obtaining an optimized directivity independent of noise/environment condition.

While, the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, disclose of adapting with high pass filer and noise determining. However, the combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of the wherein said parameter being adapted with noise is specifically a high-pass filter. But, it noted having such specific wherein the parameter being adapted is the high-pass filter is merely the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with the specific wherein the parameter being adapted is the high-pass filter for obtaining an optimized directivity independent of noise/environment condition.

Re claim 2, the sound reproduction system as claimed in claim 1 (col.17 line 8-13; col.3 line 35-50/range spectrum and filter), but, combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of wherein the pass frequency (f) is a frequency between 300 Hz and 2 kHz.

But, it is noted having such specific wherein the frequency (f) is a frequency between 300 Hz and 2 kHz is merely the designer's need with no unexpected result to be produced. Thus, it would have been obvious for one of the ordinary skill in the art to have modified t combined teaching of Anderson and Davis and Knapp et al. as a whole, wherein having a the frequency (f) is a frequency between 300 Hz and 2 kHz for enabling the listener to obtain optimal sound quality during noise.

Re claim 3, the sound reproduction system as claimed in claim 1, But, the combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of the specific wherein the high-pass filter is a first order or second order filter. But, official notice is taken the concept of having a high-pass filter being a first order or second order filter is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with the specific having a high-pass filter being a first order or second order filter for allowing selected signal to pass through for better hearing.

Re claim 5, the sound reproduction system as claimed in claim 1, wherein the pass frequency is adaptable between 50 and 2 kHz (see claim 2 rejection analysis).

Re claim 6, the sound reproduction system as claimed in claim 1, wherein the compressing amplifier is arranged not to amplify a signal having a signal strength below a threshold value (col.18 line 10-25).

Re claim 7, a sound reproduction system comprising a digital audio signal input, a digital audio signal processor and a digital audio signal output, wherein the digital signal processor comprises a high-pass (HP) filter havinq a pass frequency (f) between a first and a second frequency, a compressing amplifier for compression and amplification of a signal, at least said amplification being performed after HP filtering, and a clipper for clipping the HP filtered, compressed and amplified signal above a clipping level, wherein the device sound reproduction system further comprises a measuring device for measuring background noise and an adaptor for adapting one or more parameters in dependence on the measured backqround noise (see claim 1 rejection analysis).

While, the combined teaching of Anderson and Davis and Knapp et al. as a whole, disclose of adapting with compression amplifier and noise determined. However, the combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to

disclose of the specific wherein said parameter being adapted with noise is specifically the compressing amplifier. But, it noted having such specific wherein the parameter being adapted is the compressing amplifier is merely the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with the specific wherein the parameter being adapted is compressing amplifier for obtaining an optimized directivity independent of noise/environment condition.

Re claim 11, the sound reproduction system as in claim 1, wherein the one or more of the said parameters is a non-linear function of the measured noise level (fig.3/being non linear as in knapp).

Re claim 12, the sound reproduction system as claimed in claim 1, wherein the sound reproduction system comprises the high-pass filter being followed by an AGC followed by a limiter/clipper (fig.2 (32,68)).

Re claim 13, the sound reproduction system as claimed in claim 1, wherein the sound reproduction system further comprises an automatic volume leveler preceded, or preferably, followed by the high-pass filter, providing a leveled signal, followed by a gain and a clipper (fig.3 (70,712), leveler followed by high pass filter).

Re claim 14, the method for processing digital sound signals comprising the steps of: attenuating frequency components of a sound signal lower than a cut-off frequency (f) between a first and a second frequency; amplifying and compressing the sound signals to within a signal band width and clipping the sound signal above a clipping level within the signal band width wherein said method further comprises the steps of measuring a background noise level; and determining one of the parameter in dependence on the measured background noise level (S) (see claim 1 rejection analysis).

While, the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, disclose of adapting with high pass filer and cut-off frequency and noise determining. However, the combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of the wherein said parameter being determined with noise is specifically a cut-off frequency. But, it noted having such specific wherein the parameter being determined is cut-off frequency is merely the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with the specific wherein the parameter being determined is cut-off frequency for obtaining an optimized directivity independent of noise/environment condition.

Re claim 15, the method as claimed in claim in 14, but, the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of the specific wherein the cut-off frequency is between 300 Hz and 2 kHz.

But, it noted having such specific wherein t wherein the cut-off frequency is between 300 Hz and 2 kHz is merely the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with the specific wherein the cut-off frequency is between 300 Hz and 2 kHz for providing better hearing for the individual listener.

RE claim 18, the method as claimed in claim 14 , wherein the cut-off frequency ranges between 50 Hz and 2 kHz (see claim 15 rejection analysis).

RE claim 17, the method as claimed in claim 14 , wherein the cut-off frequency is determined by a non-linear function of the noise level (S) (fig.3 in knapp).

Re claim 20, the method as claimed in claim 19, wherein the method further comprises the step of determining the cut-off frequency (f") is determined in dependence on the measured background noise level (S) (see claim 1 rejection analysis).

Re claim 21, the method as claimed in claim 20, wherein the cut-off frequency (f") is determined by a non-linear function of the noise level (S) (fig.3 in knapp function of non-linear noise).

Re claim 23 has been analyzed and rejected with respect to claim 14.

6. Claims 8- 10; 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 4,792,977) and Davis et al. (US 6,574,342 B1) and Knapp et al. (US 7,324,649 B1) and Martin et al. (US 5,710,820).

Re claim 8, the sound reproduction system as claimed in claim 1 (with the compression amplifier and filter signal and also low pass for output as claimed fig.1, 3), but the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of wherein the digital audio processor further comprises a low-pass filter for filtering the signal provided by the compressing amplifier.

But, Martin et al. of a system wherein the processor further comprises a low-pass filter for filtering the signal provided by the compressing amplifier and for providing an output (fig.2 (30); col.3 line 20-30). Thus, taking the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, with the low-pass filter for

filtering the signal provided by the compressing amplifier and for providing an output signal for avoiding distortion of the amplifier stage and band limiting the input signal.

However, the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, fail to disclose of the specific wherein the pass frequency of the low-pass filter (f') lying in the range 2 kHz-Fs/2, wherere Fs is a sampling frequency. But, it noted having such specific wherein the pass frequency of the low-pass filter (f') lying in the range 2 kHz-Fs/2, wherere Fs is a sampling frequency is simply the designer's need with no unexpected result to be produced. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with further having such pass frequency of the low-pass filter (f') lying in the range 2 kHz-Fs/2, wherere Fs is a sampling frequency for obtaining the optimal sound signal amplified signal to the listener.

Re claim 9, the sound reproduction system comprising a digital audio signal input, a digital audio signal processor and a digital audio signal output, wherein the digital signal processor comprises a high-pass (HP) filter having a pass frequency (f) between a first and a second frequency, a compressing amplifier for compression and amplification of a signal, at least said amplification being performed after HP filtering, and a clipper for clipping the HP filtered, compressed and amplified signal above a clipping level, and the digital audio processor further comprises a low pass filter for

filtering the compressing amplified and clipped signal and wherein the device sound reproduction system further comprises a measuring device for measuring background noise and an adaptor for adapting one or more parameters in dependence on the measured background noise (see claim 8 rejection analysis).

While, the combined teaching of combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, disclose of adapting with high pass filer and noise determine. However, the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, fail to disclose of the wherein said parameter being adapted is the specifically a low pass filter with noise. But, it noted having such specific wherein the parameter being adapted is the specific of the low pass filter is merely the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, with the specific wherein the parameter being adapted is the low-pass filter for obtaining an optimized directivity independent of noise/environment condition.

Re claim 10, the sound reproduction system as claimed in claim 9, wherein the sound reproduction system further comprises means for activation and/or setting the frequency dependence of the low pas filter in dependence on the amplification in the compressing amplifier (see claim 8 rejection analysis/signal from amplified compressed to low pass filtered).

RE claim 19, the method as claimed in claim 14 (with amplifying, compressing and clipping of the signal as discussed), but, the combined teaching of Anderson and Davis and Knapp et al. as a whole, fail to disclose of such wherein said method further comprises, after compression said amplifying and compressing step and said clipping step, attenuating frequency components of the resulting digital signal below a cut-off frequency f' between 2 and 4 kHz are attenuated.

But, Martin et al. of a system wherein said method further comprises, after compression said amplifying and compressing step and said clipping step, attenuating frequency components of the resulting digital signal below a cut-off frequency (fig.2 (30); col.3 line 20-30). Thus, taking the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of combined teaching of Anderson and Davis and Knapp et al. as a whole, with after compression said amplifying and compressing step and said clipping step, attenuating frequency components of the resulting digital signal below a cut-off frequency for avoiding distortion of the amplifier stage and band limiting the input signal.

However, the combined teaching of Anderson and Davis and Knapp et al. and Martin et al. as a whole, fail to disclose of the specific attenuating frequency

components of the resulting digital signal below a cut-off frequency f' between 2 and 4 kHz are attenuated. But, it noted having such specific attenuating frequency components of the resulting digital signal below a cut-off frequency f' between 2 and 4 kHz are attenuated is simply the designer's need with no unexpected result to be produced. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Anderson and Davis and Knapp et al. as a whole, with further attenuating frequency components of the resulting digital signal below a cut-off frequency f' between 2 and 4 kHz are attenuated for obtaining the optimal sound signal amplified signal to the listener.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614